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ABSTRACT

Differences in toy selection and play behavior of five preschoolers with Down's Syndrome and nonretarded preschoolers matched for mental and chronological age were examined. Toy selection was determined by length of time and frequency with which the child played with 12 toys in two 15-minute sessions. Analysis of play behavior considered child and toy characteristics and aspects of the play situation. Parent questionnaires were also completed. Average amounts of time played among the Down's and the two nonretarded groups revealed that Down's Syndrome Ss played with toys significantly longer than the other groups. Groups did not differ on other play behavior or toy selection. Parents were fairly accurate in predicting their child's toy preferences. Findings differed from previous research that suggested that children with mental retardation play less than nonretarded children. (CL)

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A COMPARISON OF TOY SELECTION AND PLAY BEHAVIOR BETWEEN PRESCHOOL CHILDREN WITH DOWN'S SYNDROME AND PRESCHOOL CHILDREN WITH NO MENTAL RETARDATION

by

WENDY MARIE NEHRING

A project submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE
(Nursing)

at the

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ABSTRACT OF THE PROJECT

A Comparison of Toy Selection and Play Behavior
between Preschool Children with Down's Syndrome
and Preschool Children with No Mental Retardation

by

Wendy Marie Nehring
Master of Science in Nursing
School of Nursing of the University of Wisconsin-Madison

1983

Professor Kay F. Engelhardt, Chairperson

A pilot study designed to examine what differences exist in toy selection and play behavior between preschool boys and girls (ages 4-6 years) with Down's Syndrome and preschool boys and girls (ages 4-6 years) with no mental retardation. A third group of preschool boys and girls (ages 2½-3 years) was used as a measure of mental age similar to the group of children with Down's Syndrome. Characteristics of the child, characteristics of the toys, and situational characteristics which may influence the play behavior of the child were assessed. A parent questionnaire provided background information on each child's play behavior. During two 15-minute observational periods the children were asked to play, unstructured, with an overall total of 12 preselected toys.

Comparison of groups using the Kruskal-Wallis Analysis of variance for unmatched groups indicated that children with Down's Syndrome

played for a significantly ($p < .009$) greater length of time with toys during the two play periods than did the two other groups of children. Children did not differ on other play behavior or toy selection.

The findings of this pilot study differ from previously reported research which indicated that children with mental retardation play less and differ in toy selection and play behavior from children without mental retardation. Limitation of sample size precludes drawing of conclusions from the study but findings of the study suggest that further study regarding play of children with mental retardation be done. Early intervention programs in mental retardation may have influenced the results.

CHAPTER I

INTRODUCTION

During childhood, the act of play serves as a useful means to determine the developmental status of a child. Selection and play application of toys are used as aspects of the evaluation of a child's play behavior. The topic of play has also been analyzed by developmental theorists to understand a child's changing behavior.

In the review of the literature, the cognitive development of play and Piaget's theory of cognitive development were examined in the preschool child with and without mental retardation. Much information is available describing play behavior in the preschool child without mental retardation with less material found on the play behavior of the preschool child with mental retardation. Few studies were found that dealt specifically with a child's toy selection, both with mental retardation and without mental retardation.

This study examined the differences in toy selection and play behavior between preschool (ages 4-6 years) boys and girls with Down's Syndrome and preschool boys and girls with no mental retardation. The study further explored: (a) the play characteristics of the normal preschool child and the child with Down's Syndrome, (b) characteristics of toys chosen by a child during play, and (c) situational characteristics which might be affected by the child's behavior in play. Other questions considered throughout the study were:

1. Do children with or without Down's Syndrome differ in play in regard to familiarity with toy selection, length of time in play, gender suggestibility of a toy, and gender identification of the child?

2. Does mental age and/or chronological age of a child, with and without Down's Syndrome, influence selection of toys at the preschool level?

Although the number of subjects used in the study was limited and the results could not be used to make general predictions regarding toy selection in preschool children with Down's Syndrome, the study was useful in illustrating similar toy selection and play behavior in preschool children with Down's Syndrome as compared to preschool children with no mental retardation, both with similar chronological and mental ages. The effects of prior infant stimulation programs and preschool programs may have influenced the results.

CHAPTER II

REVIEW OF THE LITERATURE

During childhood, play is useful to determine the developmental status of a child. The selection of toys by the child can be used as part of the play assessment. Although developmental theories have been used to analyze play, information describing the cognitive development and play behavior of the child with Down's Syndrome has been limited.

Outlined in the review of the literature is the cognitive development and play behavior during the preschool period in the child with mental retardation and the normal child as described by Piaget and Inhelder. Individual characteristics of the preschool child, toy characteristics, and environmental characteristics affecting play behavior of the child, both with and without mental retardation, will be discussed.

Cognitive Theory of Play

Play has been given many different meanings and described in countless fashions, both vague and specific. Many philosophers, scientists, psychologists, and educators have narrowed the subject of play to examine facets of this act. It has been described as a process which has both action and propensity (Takata, 1971), yet no comprehensive theory has been penned (Weisler & McCall, 1976). Play is a developmental process (Singer & Revenson, 1978) which Piaget

(1962), and his associate, Inhelder (1966), emphasized in their discussion of a child's cognitive development and relationship to play.

Piaget viewed play as a product of a level of cognition through which a child must progress from an egocentric, literal and illogical idealogy to the adult's theoretical, rational and systematic viewpoint. Play incorporates the concepts of assimilation and the refraction of reality to what is known (Gilmore, 1966). Play is the child's means to self-expression and is individualistic (Axline, 1947). In disagreement, Sutton-Smith (1971) in his book, Child's Play, does not feel that the function of play can be compared to the operations of thought because play is an adaptive behavior as opposed to the inwardly structured thought process described by Piaget.

Piaget (1962), in his book, Play, Dreams, and Imitation in Childhood, gave several criteria of play in distinguishing the beginning of play in an individual as the first separation between assimilation and accommodation, which has sometimes been referred to as pure assimilation. According to Piaget, assimilation refers to an intaking and organization of new information into one's behavior, whereas, accommodation refers to a change in behavior. These criteria included that play: (a) does not exist as a steady state, but rather as a dynamic and changing behavior; (b) is spontaneous; (c) produces pleasure; (d) is characterized by lack of organization; and (e) is free from conflicts based in reality.

During the sensory-motor period, from ages birth through two years, the role of play in the child is characterized by three stages of play (Piaget, 1962). Each stage evolves from the previous level,

from reflex behavior to imitation of objects (Singer & Revenson, 1978). The play stages are exploratory, manipulatory, and practice. Exploratory play occurs when the infant's goal is to recognize the properties of a new object. Manipulatory play is evidenced by the infant's curiosity of what the new object is and what can be done with it. Finally, practice play surfaces in the infant's repertoire when a change of activity is noted by interaction with the object and not just a change of the object. A substage of this type of play is repetitive play when the infant begins to code and classify (Libby, 1975).

Imitation and practice characterize play of the preoperational period extending from two to seven years of age. This period illustrates Piaget's most detailed description of play development with three stages. Stage 1 includes imitation with and without symbolic assimilation which serves to bend reality and involves egocentricism. This form of play allows the child to reproduce past experiences through symbolic representation. This use of symbols is a method of expression and not an end result. Singer and Revenson (1978) described imaginative play as either primary or secondary depending on the conscious or unconscious assimilative nature of the play. Play is above all a pleasurable experience which reflects upon the ego. In Stage 2, play is used to reproduce reality. Sutton-Smith (1971) argued that play does not copy, but distorts reality. Because of the child's widening interaction with the environment, the child's play moves toward accommodation and the dialogue becomes more coherent. Finally, Stage 3, of the preoperational period, provides a transition into the

final level of play which occurs during the concrete period. Stage 3 is characterized by less egocentrisicm and decreased symbolism. More coordination in role-playing is noted and the beginnings of rules and games involved in group play are evidenced. During this level of play, the child alters reality to what is desired. The child develops traits, qualities and characteristics that will provide a blueprint for the future work-play role of the adult through the emergence of group play and cooperation (Piaget, 1962, 1967).

Michelman (1971) discussed play cognitively by two levels of graphic representation, individualistic and universal. The initial and individualistic level, scribbling stage, extends from ages two through four years and includes self-expression and symbol formation. The second level, the pre-schematic stage, occurs from four to seven years and consists of the child's representing conceptual realism through the use of universal symbols.

Through play, a child gains knowledge of self and a sense of mastery and power. Skills that can be acquired and/or increased include: vocabulary, acuity of the senses, attention span, concentration, delay of gratification, creativity, imagination, flexibility, empathy, and role-playing (Clune, Paolella, & Foley, 1979). The development of intelligence is nurtured (Weinstein, 1973) and the child becomes enculturated (Chance, 1979).

Summary

Play has been defined as a behavioral process where a child's biopsychosocial development is enhanced and becomes an essential function of childhood evolving from birth. Though Weisler and McCall

(1976) in their critique of the concept of play stated that no comprehensive theory of play exists, Piaget's cognitive view of play provides a theoretical perspective of play. Singer (1973) stressed that in spite of available theoretical and conceptual information regarding play, sufficient systematic research and replication was lacking.

Play and the Child Who Is Mentally Retarded

Play provides comprehensive modes for the development of gross and fine motor skills, language skills, cognitive skills, social relationships and self-actualization (Carlson & Ginglend, 1961; Leland & Smith, 1965; McLaughlin, 1978; McNelly, 1978). Play serves this same function for the child who is mentally handicapped. Through play, a child who is mentally retarded can be aided to interact more realistically with the milieu enabling less autistic behaviors (Leland & Smith, 1965). Without play, self-stimulatory and self-abusive behavior may result (Barnard & Erickson, 1976).

All children must be taught to play. Play development of the child with mental retardation will differ from normal children by progressing at a slower and individual rate (Mogford, 1977). Lack of play opportunities for children with mental retardation may result in further differences and provide another basis for examining the mentally retarded child's play behavior (Carlson & Ginglend, 1961; Takata, 1969; Libby, 1975; Wehman, 1975).

The play of the child who is mentally retarded has been described as decreased in originality, exploratory play activity, precision, speed, curiosity, intensity and demonstrating difficulty with words

and numbers (Benoit, 1955; Millar, 1974; Norris & Williams, 1975). Children with mental retardation also require repetition, learn more slowly than normal children, rely on visual examples rather than word descriptions, and relate better to things than ideas or concrete versus abstract conceptualizations (McLaughlin, 1978). Physical handicaps which result in coordination problems may further hinder the child's play habits (Carlson & Ginglend, 1961). Children with Down's Syndrome often have hypotonia, tongue-thrusting, decreased leg growth, and altered hand development which influences their play behavior. Children with mental retardation have also been described as often developing mentally, socially and physically beyond general expectations (Carlson & Ginglend, 1961).

Many instrumental and evaluative tools exist (i.e., standardized and simple descriptive assesments) which provide prescriptive measures of functional levels. An example of a formal evaluation of present functional abilities and a prediction of potential can be ascertained through a play assessment and the formulation of a play history as a means to prescribe play stimulation and intervention (Currie, 1969; Takata, 1969; Head, 1975). Used as a descriptive and diagnostic evaluation, the history involves both form and content of play. Form includes the aspects of play: the choice of toys, the degree of playfulness and the individual and developmental organization of the child's play. Content incorporates the child who is playing: the child's physical and emotional status, immediate needs and life situation. Takata's play history is divided in seven categories to identify the child's play experiences and opportunities: dominant

play styles, temperament, play environment, predominant posture in play, frequency of play, degree of activity and toy choice (Takata, 1969).

Summary

Play is an important functional area for the child with mental retardation as well as the child without mental retardation. A child with mental retardation who accelerates in mental, social and physical development may interact in play at a level beyond general expectations (Carlson & Ginglend, 1961). Assessment of play, including play history, has been used to determine the mentally retarded child's potential for play development and to recommend play intervention and stimulation. Information and research which describes play interest and the capacity for play development in children with specific conditions characterized by mental retardation (i.e., Down's Syndrome) is needed.

Characteristics of the Child

The act of play is dependent upon the norms and mores of society as well as the historical influences of the time. The play of an individual child includes both unique and universal characteristics. Gender role adoption, gender preference, aggression/vigorousness, exploration level, dependence/independence, language skills, and imagination are characteristics of children which influence play behavior and interests, and will be examined in both the child with mental retardation and the child without mental retardation.

Gender Role Adoption

A child's adoption of a gender role is viewed as a developmental task, a cognitive sequence, a psychological event, and a biological phenomenon. The development of gender identification is described as a developmental task interacting with social and cultural influences (O'Neil, McLaughlin, & Knapp, 1977). Kohlberg (1966) theorized that changes in a child's cognitive, social and physical development as well as the child's own experiences influence attainment of gender role identification and not biological instincts or graded sex-role socialization. He stated that parental attitudes, not reinforcements, affect the child's sex-typing. Specifically, gender role identity parallels cognitive development in that the child is able to place a label on his/her gender role by the ages of two or three, is able to correctly label others by ages four through five years, and is able to comprehend his/her own gender identity by the ages of five to six. Other theorists, in contrast, maintained that gender role adoption evolves directly from a genetic or hormonal source and, therefore, is biological in origin (Brindley, Clarke, Hutt, Robinson, & Wethli, 1973).

The psychosocial view is detailed in the literature with imitation of the dominant parent-figure and reinforcement as major determinants of the child's sex role identification (Fagot & Patterson, 1969; Maccoby & Jacklin, 1974). Studies have also stressed the influence of societal norms and have illustrated contrasted views. Maccoby and Jacklin (1974) stated that by the preschool years, the child adopts and exhibits adult role-type behavior comparable to the societal expectations for that role. Their studies indicated that by age four

years the child, especially males, illustrated appropriate sex-typed behavior. Stone (1971), in contrast, described the female role as more gender oriented and suggested that identification during the preschool years is easier for the female. With the expansion of the female role, studies have indicated feminine preferences because of prestige for masculine behavior (Rosenberg & Sutton-Smith, 1971), but feminine behavior in the male is looked upon abnormally (Lynn, 1971). Most research has found gender role identification established by the third year and is credited to maternal influence (Fagot & Patterson, 1969; Goldberg & Lewis, 1969; Finley & Layne, 1971). Sex-typing behavior has been found as early as three weeks (Moss, 1967) and not until 13-14 months (Jacklin, Maccoby, & Dick, 1973).

Little research has been done regarding gender-role identification in the child with mental retardation. Because of deinstitutionalization, the person with mental retardation has an increased need for sex-role identification for social functioning and acceptance (Olson, 1967). Studies replicating imitation or reinforcement research with children without mental retardation need to be done with children with mental retardation.

Gender Preference

Differences in a child showing preference for a particular gender companion or gender-suggested object has decreased considerably in the past 30 years (Sutton-Smith & Rosenberg, 1971). In contrast, Maccoby and Jacklin (1974) found that children preferred same-sex peers by four years of age. Research with children with mental retardation indicated little or no gender preferences. Rather, an age bias has

been shown (e.g., children with mental retardation were treated and expected to act as a child) (Horne & Philleo, 1942; Benoit, 1955; Farber, 1968; Millar, 1974). Research is indicated for preferences of objects based upon qualities of gender-suggestibility.

Amount of Exploration

Research has found that girls are less exploratory in play behavior than boys (Goldberg & Lewis, 1969). Weisler and McCall (1976) showed that girls preferred to play with a combination of toys in contrast to the sequential object and/or activity play seen in boys. McGuiness (1976) offered a broader visual field with less depth in females than males as an explanation. Differences during play in the combinations of toys and manipulation of the toys were witnessed between children with and without mental retardation (Weiner, Ottinger, & Tilton, 1969). Fleeting contacts and limited manipulations of toys by children with mental retardation found by Tilton and Ottinger (1964) may be factors. No studies were found which indicated play object selection by children with mental retardation.

Aggression/Vigor

Research has shown that boys are more physical and girls are less aggressive in their play behavior (McDowell, 1937; Goldberg & Lewis, 1969; Maccoby & Jacklin, 1974; Weisler & McCall, 1976). Girls also preferred fine motor activities and boys gross motor activities (Sutton-Smith & Rosenberg, 1971). Genders demonstrated similar vigor, but girls demonstrated more variability (Fales, 1937). Wang (1958) revealed that children with mental retardation were less active, but

another study indicated that children with mental retardation showed greater pounding and push-pull type activities (Weiner, Ottinger, & Tilton, 1969). Wang (1958) further discovered that girls with mental retardation were less sedentary, solitary, and esthetic than girls without mental retardation. Mogford (1977) reported that parents have complained of rough, destructive or inappropriate use of objects in children with mental retardation.

Dependence/Independence

Although autonomy is characteristic of preschool children, studies have repeatedly indicated that girls are more dependent than boys (Goldberg & Lewis, 1969). Children with mental retardation have also been described, often as a result of their handicap, to be dependent on others (Mogford, 1977). Research is indicated to determine effects of dependence/independence on play behavior and toy selection in both the child with mental retardation and the child without mental retardation.

Language

As a child gets older, the growing complexity of his/her play is influenced by the use of language. At the beginning of the preoperational stage, when the child starts to use language, Piaget felt that the correctness or incorrectness of the choice of words is not an adequate reflection of the child's thoughts (Schwebel & Raph, 1973). Later, during the preschool years, the child without mental retardation develops the conceptual ability to express feelings and thoughts more through words than actions. Preschool girls are more skillful with language than boys (Millar, 1974). Due to developmental deficits, the

child with mental retardation often has difficulties in communication and may demonstrate abusive verbal behavior (Schlottmann & Anderson, 1975). Research is indicated to examine the relationship of the language skills of children with different conditions resulting in mental retardation (i.e., Down's Syndrome) and the effect on play behavior.

Imagination

Activity in play is not solely determined by interaction with objects. Originality and creativity have been recently stressed in our culture. Singer (1973) found that males were more involved in fantasy or imaginative drama, whereas females imitated stereotypic social roles. Contrasting studies revealed that females were more imaginative than males because of the use of more abstract toys; males tended to enjoy toys with a concrete cognitive theme (Lesser, 1962; Chance, 1979). Comparison of children with and without mental retardation indicated that children without mental retardation were more creative and imaginative, and preferred thought-provoking activities. Children with mental retardation chose structured activities without complicated rules and preferred social play (Horne & Philleo, 1942; Schlottmann & Anderson, 1975). Studies were not found which addressed the mentally retarded child's imaginative capabilities.

Summary

Developmental and personal qualities of a child influence behavior and activity selection in play. Stone (1971) stated that the play of a child requires appearance and movement and is complemented

by material objects and the environment. Most research has been done using a psychosocial framework. Although research has been done on children without mental retardation, more data is indicated in relation to play behavior with children with mental retardation.

Characteristics of the Toy

Toys need to be attractive, durable, safe, well-constructed, challenging, imaginative, curiosity-stimulating, non-toxic, and fun (Levenstein, 1976). Choice of toys can also be purposeful and used to: (a) increase attention span, (b) determine imaginative behavior, (c) evaluate degree of fine and gross motor skills, (d) observe for problem-solving abilities, (e) stimulate exploration, and (f) assess level of interaction (Barnard & Erickson, 1976; Levenstein, 1976). Variables such as color, shape and size, object complexity, construction, developmental appropriateness, familiarity/novelty, and gender suggestibility can further influence the selection and preference for a toy.

Color

Visual qualities of a toy often invite a child to interact with the toy objects (Gips, 1950). Levenstein (1976) discovered that primary and secondary colors aid the child to learn and repeat names. Whether color influences a mentally retarded child's choice of a toy similar to choice of a non-retarded child is unknown. No research was found regarding color and the play behavior of a child with mental retardation.

Shape and Size

Variety in shapes and sizes assists the child to develop discrimination and classification. Although the character of the toy can often be described by its size and shape (Gips, 1950; Levenstein, 1976), the preschool child has poor perception of shapes and sizes (Marlow, 1977). Cognitively, the child has not conceptualized conservation or the comprehension of perceptual constancy. Gips (1950) contended that uniform and standardized shapes and sizes in toys inhibit the child's experience and curiosity. Switzky, Haywood, and Isett (1974) supported this thought by confirming that ambiguity and incongruity elicit exploratory play. In contrast, Weisler and McCall (1976) discovered that clarity, simplicity, and congruity elicited play behavior. Theorists have also indicated gender differences in toy selection based on size and shape. McElroy (1954) found that girls preferred round objects, whereas boys were most interested in pointed objects. No studies were found that compared sizes and shapes with toy preferences of children with mental retardation.

Object Complexity

The cognitive ability and development needed to correctly play with a particular toy has been minimally examined. Weisler and McCall's (1976) work has shown that increased attention span and diversity in play correlate with the increased complexity of the toy object. Switzky, Ludwig, and Haywood (1979) expounded this premise to include intellectual level, object complexity, and chronological age as factors interacting to influence the child's play behavior. Generally, as a child masters developmental skills, the complexity of

play and complexity in corresponding play objects increase (Ellis, 1973). Information regarding a mentally retarded child's toys indicated only that the toys tended to be simple, not complex (Benoit, 1955).

Construction

The construction of a child's toy has become an important criterion for toy purchase or recommendation. Much is written for professionals and parents concerning the durability, safety, and growth and developmental potential of a toy. Caplan and Caplan (1973) indicated that a toy should be designed for the child's size and developmental needs. During the preschool period, theorists have stressed that the building of large muscles, refinement of fine and gross motor skills and development of self-esteem are important factors to consider when choosing a toy (Caplan & Caplan, 1973; Levenstein, 1976). Caplan and Caplan (1973) discouraged the use of mechanical toys, stating passive participation resulted with limited play behavior. Pulaski (1973) also found a loss of exploratory and creative play behavior with less imaginative toys. Simple designs to decrease levels of frustration were recommended for preschoolers with and without mental retardation (Bridges, 1933; Axline, 1947). More recently, McLaughlin (1978) has written that toys safe for children without mental retardation can be dangerous for children with mental retardation with the same mental age. McLaughlin found that children with mental retardation are usually older and stronger than the child without mental retardation for whom the toys were designed. The play materials used by children

with mental retardation, and specifically, children with Down's Syndrome, given the opportunity to select toys for themselves, is unclear.

Developmental Appropriateness

Toys are often recommended and referenced based upon developmental qualities. Imlay (1952) has suggested that toys for children during Piaget's stage of sensorimotor development (birth to two years) should be washable with no loose parts, sharp edges or points, and should train the senses. Mobiles, rattles, brightly-colored objects, balls, push and pull toys, stuffed animals and dolls all serve this age category. During the preschool period or Piaget's second level of preoperational thought (two to seven years), Imlay discussed the need to have play material available to stimulate activity and development of the large muscles of the body. Examples are push-pull toys, a tricycle, balls and blocks. Artwork and picture books are also important to stimulate the intellectual development of the child. Packaging for toys often indicates a chronological age of the child appropriate for a toy, but no data was found indicating an appropriate listing of toys based upon mental age when the child's chronological age differs from the mental age.

Familiarity/Novelty

Many studies have been done comparing the variables of familiarity and novelty of toys with children's play behavior. Millar (1974) found that the manner and kind of play behavior exhibited depended on the toys available to the child. Some studies indicated that a child tended to explore the novel toy initially (Piaget, 1962), but played

with the familiar object (Weisler & McCall, 1976). Other research indicated that the novel toy is preferred (Gilmore, 1971; Chance, 1979). Experimental work has also indicated that familiar toys denoted security for the child and a greater repertoire of responses could be elicited from them (Currie, 1969; Sutton-Smith, 1971). Barker, Dembo, and Lewin (1941) found regressive behavior when children were given familiar toys after they had played with newer, novel play materials. In comparing the child with mental retardation to the factors of familiarity and novelty, Currie (1969) found children with mental retardation more fearful, less adaptive to change, less responsive to novel play materials and preferred secure, familiar toys in relation to children with no mental retardation.

Gender Suggestibility

Societal and maturational qualities have determined gender-specific play materials. Theorists have found that society labels toys because of repetition of use by a particular sex (Hartley, Frank, & Goldenson, 1952; Maccoby & Jacklin, 1974). Garvey (1977) maintained that toy preferences were indicative of a child's sexual identification. More recently, Eaton, VonBargen, and Keats (1981) suggested that a sexual preference toward a particular toy is based upon the child's own gender stability. Few studies were found examining sex differentiation in choice of toys by children with mental retardation.

Summary

Much is written about choosing toys for children based upon developmental and maturational levels. A consistent rationale for a selection of play materials is not available. No studies were found

to indicate a suitable number of playthings appropriate for a child's mental and chronological age. Data was also unavailable to determine if parents choose toys for children with mental retardation based upon developmental or social factors.

Situational Characteristics

Situational characteristics present in the play environment may influence a child's behavior in play. Examples include the preschooler's cognitive development, parental influences, environmental factors and an unstructured versus structured atmosphere for both the child with and without mental retardation. Developmental theories will be discussed from birth through the preschool period of approximately six years.

Piaget's Cognitive Developmental Theory

Piaget's (1962) theory of development describes the cumulative cognitive growth of an individual. He stated that development stems from the interaction of the organism and the environment. Basic to his theory are the concepts of assimilation and accommodation. Assimilation is described as taking new information and placing it within previous conceptions of that object and/or of the reality of the world about it. Accommodation is a continuing process whereas the organism, in interacting with the environment, adjusts to reality by producing a change in behavior (Singer & Revenson, 1978).

Piaget detailed his theory by separating the progression into stages; each stage signifies a new way to gather information, seek solutions to problems and achieve goals. Developmental progression

is qualitative, not quantitative, and involves a reorganization of mental functioning at each stage (Weinstein, 1973).

From birth through two years of age is the stage of sensory-motor which is subdivided into six substages. During this period of development, the child develops behavior sequences which possess internal and external components defined as schemata. The child moves from total nondifferentiation of self and environment to beginnings of thought and representation of self-displacement. By the end of two years, the child has assimilated information and can show early signs of accommodation. Object permanence, language, and imitation moves the child into the next stage described as preoperational.

Lasting from approximately two through seven years of age, this stage is characterized by egocentrism and lack of logical or systematic thinking processes. The preschool child has begun to use language and mental images to illustrate what is conceived. Thoughts focus on the here-and-now and are not completely internalized. When the child is able to conserve (ability to recognize that qualities do not vary despite changes in physical features) advancement to the third stage of concrete thinking is achieved.

Cognitive Development of the Child Who Is Mentally Retarded

Inhelder (1966) has done extensive cognitive study of individuals with mental retardation. Through collaborative work with Piaget, the thought processes and reasoning of the children with mental retardation were researched and described, providing a base for improved diagnoses and prognoses. Inhelder described the reasoning of persons with mental retardation as characterized by blocking or cessation of the

cognitive development at different levels of development which can also occur during the transition between stages. Thus, difficulty in the integration of concepts alters and slows down the speed or rate of progression of cognitive development in the child who is mentally retarded. When optimal cognitive development is completed, the child with mental retardation displays reasoning evidenced at former levels. The mentally retarded child's cognitive development, therefore, exhibits gradual slowing to eventual stagnation which Inhelder described as a "false equilibrium" as opposed to Piaget's definition of equilibrium.

Inhelder distinguished mental retardation as the failure of the child to move beyond successful achievement of earlier stages thereby stagnating the child in the lower or more primitive stages of cognitive organization. Many researchers have regarded this definition when they have consequently established the mildly affected mentally retarded individual as achieving the third or concrete operational level of thinking, the moderately affected mentally retarded individual as operating at the preoperational intuitive level (Inhelder, 1966; Lovell, 1966; Reiss, 1967), and the severely or profoundly affected mentally retarded person only reaching the level of sensory-motor functioning or possessing no definable cognitive construction (Schmid-Kitsikis, 1973). Other research has formulated evidence of the former as over-generalization in defining the mentally retarded child's abilities (Rynders, Spiker, & Horrobin, 1978).

Gibson (1978) described the individual with Down's Syndrome as having the most rapid mental growth during the first four years and

reaching a plateau at age four. Some children show little growth beyond the sensory-motor arena of social skills. These children were able to progress through the first five substages of Piaget's sensory-motor stages well, but appeared to have difficulty achieving the sixth substage characterized by cognitive awareness of combinations and manipulation of symbols. Another less accelerated period of growth occurred after the preschool years from ages five through nine, with a mental age of two to three years achieved. Gibson described mental ages of two or three as realistic limits of mental growth for the child with Down's Syndrome; exceptions have existed.

Inhelder felt that children with mental retardation displayed oscillations in their thinking processes from their present and past levels of cognitive development. She presented four different levels of oscillations moving from the best prognosis to the worst. Described as progressive oscillations in which the child displayed responses at a given level of thought and then moved on to perform at a higher level. True oscillations were characterized by a constant movement between two levels of thought. Anxiety, suggestibility and frustration all served to influence the level of thinking. Prognosis at this level depended on the child's intellectual ability and the degree to which the above factors influenced the child's behavior. Retrogressive oscillations were characterized by decreased levels of thinking as the child moved through a task. Previous social learning is believed to influence relative oscillation activity. Inhelder described the stage of abnormal decalage as exaggeration of time displacements or

temporal lags in the reasoning ability; regression is a distinct possibility (Inhelder, 1966).

Parental Influence

Parental behavior and the confidence to meet the child's needs have been found to influence the child's play behavior (Garvey, 1977; Juenker, 1977; Chance, 1979). The mother's personality, self-perception, child-rearing practices, the child's play behavior (Weisler & McCall, 1976), situational characteristics of the family and the mother's previous relationship with her family of orientation (Burkhauser, 1979) served to influence the mother's interaction in play with her child. No specific information was found on paternal factors influencing a child's play habits.

Parental expectations of the child with mental retardation coupled with guilt and sometimes hostility toward the child (Burkhauser, 1979) may influence parents to play less and in a more constricted manner (Gunn, 1977). Kogan and Tyler (1973) found that parental rejection is often observed with children with a mild handicap, whereas overprotectiveness is seen in parents with a child with a more severe condition. They further found that mothers were more stressed with a daughter with mental retardation than with a son with mental retardation. Other studies on overprotectiveness found that mothers of children with handicaps felt that if they let their children play away from their view, they might get lost (Marlow, 1977). Kogan, Wimberger, and Bobbitt (1967) discovered that mothers of children with mental retardation showed more neutral interaction, posed more close-ended questions and delivered more orders to their

children. Jones (1976), in a sutdy of mothers and children with Down's Syndrome, found that, because of the child's communication difficulties, the effectiveness of the mother's interaction with her child in play was decreased because of inadequate cues from her child. No specific studies were found examining paternal interaction in play with children with mental retardation.

Environmental Factors

Piaget (1962) felt that the individuality of the child should be stressed, that experiences should be appropriate to the level of functioning, but that challenging experiences should not be discouraged. The child's present thought processes should be accepted and the child should be encouraged to interact with the environment. An environment should be provided that serves to promote and support learning (Reiss, 1967; Engelhardt, 1974). Florey (1971) indicated that stresses such as hunger, anxiety, isolation, fear or pain can inhibit a child's play behavior. Other theorists have stressed that the environment: (a) be safe, secure, and possess a degree of realism; (b) be language-rich and reinforced to enhance language skills (Barnard & Erickson, 1976); (c) be able to meet the child's needs considering the appropriate choronological age and mental age of the child (Weisler & McCall, 1976; Chance, 1979); (d) provide variations and opportunities for meaningful contacts and concepts, offered gradually for the child with mental retardation (Carlson & Ginglend, 1961); and (e) provide easy accessibility to toys and other play materials (Juenker, 1977).

Exposure to infant stimulation programs and other early childhood enrichment programs, both for the child with and without mental retardation, can aid to enhance the child's biophysical and cognitive development. Specifically, the infant stimulation programs have recently represented the most effective treatment plans available for children with mental retardation. A phenomenon of the past decade, such programs have been designed to: (a) increase the attention span of the child; (b) increase stimuli to the senses through appropriate use and selection of toys; (c) obtain specific, desired responses geared to the child's skill level; and (d) facilitate family-child interaction (Blackwell, 1979; Schuster & Ashburn, 1980).

A successful adjunct to the advancement of a child's play development is England's use of toy libraries and adventure playgrounds (Head, 1975). The toy libraries serve to provide the parents or givers adequate and useful materials and toys to assist the child achieve the greatest potential. Use of the play library is facilitated by a play history. Adventure playgrounds provide varied experiences which combine all of the senses and the basic elements (sand, water, etc.) to promote successful progression of play development (Head, 1975; Sylvester, 1977). Recently, research has indicated that deinstitutionalization has enhanced the opportunities and quality of experiences available for the mentally retarded child's cognitive growth (Blackwell, 1979).

Structured versus Unstructured Play

Gunn (1977) discovered that the child will select toy material and play activities for which importance has been indicated to the

child. He advocated unstructured play in order that the child can be free to respond in his/her own way, have optimal time and opportunities to explore, be self-regulating, have individual freedom and behave in a need-fulfilling manner. In agreement, Carlson and Ginglend (1961) stressed the child's need to relax in order to act out problems and life experiences. Michelman (1971) contended that a child needs time for both group and solitary play time. Chance (1979) suggested that parents play with their child and serve as good play models, but not attempt to direct play behavior. Both structured and unstructured play provide opportunity for improvement of motor and muscular coordination in the child. Toys and other play materials must be varied to offer both structured and unstructured experiences (Carlson & Ginglend, 1961). When comparing children with and without mental retardation, Hulme and Lunzer (1966) found no significant differences in the ability to structure their own behavior.

Summary

A child's cognitive development influences the level of play development. Studies have explored differences in play behavior by comparing the chronological and mental ages of children, both with mental retardation and without mental retardation. Research indicated that environmental or situational factors can affect a child's behavior in play. No data was found on the paternal influence on a child's play, both with a mental handicap and without mental retardation. A listing of toys based upon developmental appropriateness for mental age when the child's chronological age is not the same is needed. A lack of measuring devices or tools to compare variety of

forms of play in both the child with mental retardation and the child without mental retardation is present. The adoption of the principles of normalcy and deinstitutionalization have aided the chances for the child with mental retardation to achieve the greatest potential for cognitive development.

Conclusion

In this review of the literature, the cognitive development of play and Piaget's theory of cognitive development were examined. Characteristics of the preschool child, both with mental retardation and without mental retardation, characteristics of the toys influenced by play behavior, and situational characteristics present in an environment which could be affected by play behavior were discussed. Although information was yielded regarding mentally retarded children's play habits, topics such as play problems and voluntary toy selection by children with mental retardation were minimally addressed in the literature.

Longitudinal studies examining the play behavior of children with mental retardation living at home need to be done. Research has indicated that children with mental retardation should have toys which are simple and unstructured, whereas the trend presently is for all toys to possess these qualities in order to promote imagination and creativity. An enriched milieu was recommended to promote biopsychosocial and cognitive growth. Although a great amount of research has been done on play behavior, a dearth of information remains regarding the play behavior and toy preferences of the child with Down's Syndrome.

The present study was designed to compare toy selection and play behavior in preschool boys and girls with Down's Syndrome and with no mental retardation in order to learn more about the play activity and toy preferences of children with Down's Syndrome.

CHAPTER III

METHODOLOGY

Purpose

This study examined the differences in toy selection and play behavior between preschool (ages 4-6 years) boys and girls with Down's Syndrome and preschool boys and girls with no mental retardation. The study further explored: (a) the play characteristics of the normal preschool child and the child with Down's Syndrome, (b) characteristics of toys influenced by a child's play habits, and (c) situational characteristics which might be affected by the child's behavior in play. Other questions considered included:

1. Do children with or without Down's Syndrome differ in play in regard to familiarity with toy selection, length of time in play, gender suggestibility of a toy, and gender identification of the child?

2. Does mental age and/or chronological age of a child, with and without Down's Syndrome, influence selection of toys at the preschool level?

Operational Definitions

Play behavior was separated into positive and negative play behaviors. The positive play behaviors included:

Role-play -- verbal and/or nonverbal emulation of previously observed behaviors.

Labelling of toys and parts -- verbally identifying toys or a part of a toy.

Problem-solving -- use of trial and error to ascertain appropriate outcome.

Imagination/Creativity -- alternative use of the toys through means of verbal and/or nonverbal expression.

Verbalization -- production of comprehensible language.

The negative play behaviors included:

Inappropriate play -- throwing, pounding or dropping a toy.

Abusive play -- breaking, hitting or causing damage with a toy; display of anger in child.

Toy characteristics were divided into the following categories:

Novelty -- playing with less than two toys which the mother had, in all cases, indicated were familiar to the child.

Few toys -- playing with two or fewer toys in an observational session.

Combinations -- using two or more toys together in play.

Gender suggestibility -- playing with the toys designated as specific to the sex of the child using them for the majority of the observational session.

Predictability of the choice of toys and time spent with each toy as determined by the parents was defined by at least a 50% accuracy based upon the outcomes of the child's observational period(s).

Sample and Setting

This descriptive pilot study compared three groups of preschool children. One group was comprised of two boys and three girls with Down's Syndrome (ages 4-6 years) and was compared to two groups of two boys and two girls with no mental retardation. Due to the availability of only one preschool girl with Down's Syndrome 4-6 years of age, one girl with Down's Syndrome aged 3½ years and another girl with Down's Syndrome aged 7½ years, were used to give some predictability to children with Down's Syndrome on either side of the

age range of 4-6 years. A younger group of preschool children with no mental retardation (ages 2½-3 years) were compared with preschool children with Down's Syndrome of similar mental ages. The final group of preschool children with no mental retardation (4-6 years of age) were compared with the preschool children with Down's Syndrome based upon similar chronological ages.

A convenience sample came from parents of children who have or were using facilities (e.g., preschools or daycare centers) which provide services to children with and without mental retardation in Dane County, Wisconsin and DeKalb County, Illinois. Initial contact regarding this study came from representatives of the facilities who distributed the letters of information and the questionnaires to parents of selected preschoolers who were found eligible for the study. The study took place in the home environment familiar to the child at times convenient to the family. In one instance, the subject was tested and observed in the child's preschool setting.

Design

An exploratory pilot study was used to implement the research. The independent variable was developmental status in relation to mental retardation. Dependent variables of toy selection and play behavior were measured. Toy selection was determined by length of time and frequency in which the child played with 12 toys in two 15-minute periods. Play behavior was obtained by the demonstration of at least one exhibition of each of seven play behaviors and selection of toys which demonstrated one exhibition of each of four

toy characteristics. Sex was controlled by equal representation of boys and girls in each group with the exception of the group of girls with Down's Syndrome which had an extra subject. Data was gathered about other variables (i.e., chronological age, mental age, and an intelligence equivalent quotient).

Procedure

Prior to the observational stage of data collection, the subject's mental age and IQ equivalent rating were determined by the Peabody Picture Vocabulary Test--Revised, Form L. The child's parent(s) were then asked to complete a rating scale to determine the parent's ability to predict the child's play behavior and toy preferences (Appendix C). This prediction was compared to the observed performance of the child. The dependent variable (toy preference or selection) was then assessed by two 15-minute observation periods of the child's spontaneous play in a familiar setting with seven preselected toys at each observation. The play sessions were done at an interval of at least two hours. Two groups of toys were used for the study with one group being used for each session. The Dump Truck and the assortment of books were used in both observational periods. Toy Group 1 consisted of the Woodsey's Log House, Wood Top Workbench, Baby Ann and her Care Set, Play Family Jetport, Crazy Clay Characters, Dump Truck and the books. Toy Group 2 consisted of the Play Desk, Wheelie Dragster, Kitchen Set, Play Family Circus Train, Miss Piggy Dress-up Muppet Doll, Dump Truck and the books. All of the toys were recommended for the age group of 4-6 years of age by the Fisher-Price Toy Company. The investigator

sat on the periphery of the play area and allowed the child to play freely for 15 minutes. The investigator was able to answer any of the child's direct questions but did not help or interact with the child. The examiner recorded the child's toy selection and length of time the child played with each toy. A narrative description of the child's play behavior was also obtained during each 15-minute play period. Parents were allowed to observe and be present during the study. Results of the questionnaire, completed prior to the observational portion of the study, were further examined to determine relationships to the dependent variable.

Data Collection Tools

The Peabody Picture Vocabulary Test--Revised, Form L (Dunn & Dunn, 1981) was selected to measure the subject's mental age and IQ equivalent rating. It was felt that the child with Down's Syndrome would be able to perform this test more effectively over other tests measuring mental age and an IQ equivalent value because of the non-verbal testing procedure used with this test. Dunn and Dunn (1981) demonstrated this test to be a reliable and valid measure of a child's hearing and listening vocabulary. The reliability of the test was found to have a Pearson product-moment correlation from a low of 0.67 at the level of six years to a high of 0.84 at the level of 17-18 years of age, with a median score of 0.77.

Personal Information Sheet (Appendix B) was used to elicit demographic data from the parents of the study subjects. Questions were formulated to include questions regarding the time a child spends in

play and the type of exposures the child has had in which to play. This form required 15-20 minutes to complete.

Parental Rating Scale (Appendix C) was designed to determine what toys used in the study the child was familiar with, predictability of the parents in identifying beforehand which toys they felt their child would choose and the time spent with the toys during the observational periods, and quantitatively determining on a scale from 1-5 (1 being low) the gender-suggestibility of each toy used--either masculine, feminine, or neutral. Completion time was about 10-15 minutes.

Toy Preference Rating Scale (Appendix D) was used to measure toy preference by counting the number of times and length of time a child played with a toy within a 15-minute period. A subjective description of play behavior observing for identified positive and/or negative behaviors in play and of toy characteristics was also tabulated.

Toys. Each of the twelve toys used were donated by the Fisher-Price Toy Company. Toys were rated for age appropriateness, gender-suggestibility, and motor behavior (gross/fine) required for manipulation of the toy (Table 1). Age weights (age-appropriateness) for each toy was designated by the Fisher-Price Toy Company. Gender suggestibility of the toys was rated by twelve judges composed of: one physician, two registered nurses, four other health professionals, one Christian educator, two parents, and two graduate students. Parent(s) for each child were also asked, prior to testing, to rate all of the toys used on a scale of 1-5, with 5 being high, on factors of masculinity, femininity, and neutrality (Appendix C). The masculinity/femininity column, as defined by the parents in Table 1,

Table 1

Toy Ratings

Toys	Age Weight	Masculinity/ Femininity Experts	Parents	Gross/ Fine Motor
Woodsey's Log House	3 years and up	F	N	FM
Woodtop Workbench	3-6 years	M	M	FM
Baby Ann and Her Care Set	3 years and up	F	F	GM
Play Family Jetport	2-6 years	M	M	GM
Crazy Clay Characters	3-7 years	N	N	FM
Dump Truck	18 months-6 years	M	M	GM
Books	5-10 years	N	N	FM
Play Desk	3-8 years	N	N	FM
Wheelie Dragster	4-9 years	M	M	GM
Kitchen Set	2-7 years	F	F	FM
Play Family Circus Train	2-6 years	N	N	GM
Miss Piggy Dress-up Muppet Doll	3 years and up	F	F	GM

reflects the highest weighting of the three measures given to a particular toy. The toy's fine motor/gross motor preference was determined by an occupational therapist.

Variables of color, size, construction, shape and object complexity were rated by the research and development staff of the Fisher-Price Toy Company (Fisher-Price Toys, 1982). Three professionals in the field of mental retardation/developmental disabilities--one occupational therapist and two nurse educators/clinicians--reviewed the ratings and concurred; consequently, the Fisher-Price Toy Company ratings were used for study purposes.

Analysis

Due to study limitations of sample size, analysis was primarily descriptive summary statistics. Kruskal-Wallis Analysis of variance for unmatched groups was used to compare average amounts of time played among the three groups.

CHAPTER IV

RESULTS

Sample Description

The play of preschool children with Down's Syndrome and preschool children without mental retardation, both with similar chronological and mental ages, was assessed in order to ascertain if differences existed in the children's toy selections and play behavior. Thirteen preschool children were used as subjects. Of this group, five children had Down's Syndrome, while the other remaining eight children, in two groups, had no mental retardation. One group was similar to the group of children with Down's Syndrome according to chronological age and the other group similar according to mental age. All children were separately observed in spontaneous play during two, 15-minute observational periods in a familiar environment with two preselected groups of toys. The Peabody Picture Vocabulary Test--Revised, Form L, an observational guide, and two questionnaires completed by the parent(s) were used to collect data.

Mental ages and an IQ equivalent rating was ascertained for each subject using the Peabody Picture Vocabulary Test--Revised, Form L. Table 2 illustrates these results.

The findings from the questionnaire eliciting demographic data (Table 3) indicated that the majority of the children tested were either the youngest member of the family or were the only child. All of the children with Down's Syndrome had siblings. In distinguishing

Table 2

Cognitive Status of Children in Play Study

Subject Group	Age in Months				IQ[a]	
	CA[a,c]		MA[a,b]			
	M	SD	M	SD	M	SD
With Down's Syndrome	60.2	19.8	40.8	16.7	69.0	7.3
Males (n=2)	53.0	7.1	31.5	31.5	62.0	8.5
Females (n=3)	65.0	25.9	47.0	20.2	73.7	7.5
MA Control	30.8	2.2	38.0	7.1	111.5	13.1
Males (n=2)	30.0	0.0	33.0	5.7	104.0	11.3
Females (n=2)	31.5	3.5	43.0	4.2	119.0	12.7
CA Control	55.3	8.2	68.0	15.2	120.0	9.1
Males (n=2)	53.5	7.8	59.5	13.4	117.5	14.8
Females (n=2)	57.0	11.3	76.5	14.8	122.5	0.7

[a]Scores obtained from the Peabody Picture Vocabulary Test (PPVT)--Revised, Form L

[b]MA = Mental Age

[c]CA = Chronological Age

Table 3

Demographic Data

Topics	Groups of Children: With Down's Syndrome (n=5) M	With Down's Syndrome (n=5) F	MA Control (n=4) M	MA Control (n=4) F	CA Control (n=4) M	CA Control (n=4) F
Physical Disability[a]						
hearing	0	1	0	0	0	0
speech and language	1	0	0	0	0	0
Birth Order[a]						
oldest	1	1	0	1	0	0
middle	0	0	0	0	0	1
youngest	1	2	0	0	1	0
only	0	0	2	1	1	1
Number of Children in Family[b]	2.5	3.3	1	1.5	2	2
Hours in Play per Day[b]	8.5	3.1	6.75	6.5	7.5	7.5
Hours in Solitary Play per Day[b]	3	0.9	2	5.5	4.5	2
Hours in Play with Siblings per Day[b]	2.5	3.6	0	0.5	0.25	1
Hours in Play with Mother per Day[b]	2.75	1.6	1.1	2	0.5	1
Hours in Play with Father per Day[b]	2	0.44	0.87	0.87	0.62	0.37
Attended Infant Stimulation Program[a]	2	3	0	0	0	0
Attended Preschool[a]	2	3	1	0	2	2
Attended More than One Preschool[a]	2	1	0	0	0	1
Attended Church School[a]	2	1	0	1	1	1
History of Babysitter[a]	1	2	2	2	2	2

[a]Frequencies [b]Average time in hours or average number

the specific diagnosis of Down's Syndrome in the group of children observed, four of the children had diangoses of Trisomy 21, and one girl had a diagnosis of mosaicism. In specifying time in play, the children all spent from 3-10 hours in play each day, of which approximately one-half to one-fourth of that time was spent in solitary play. Time was spent in play with siblings if siblings were present in the family. Time varied in play with the mother and father, but usually time spent in play with the father was half of the time spent with the mother in play. Most of the children spent time in play with their grandparents and had opportunities to spend time in play with other children. All of the children with Down's Syndrome had spent time in an infant stimulation program beginning their programs at a range of seven weeks to two years of age. All but three of the children without mental retardation attended a preschool program. Few children had attended church school and all but two children had experienced a baby-sitter's presence.

When asked to describe the children's favorite toy, the parents most frequently described toys which stimulated imagination, creativity and role-playing. Gender suggested toys were only mentioned for the boys. Toys mentioned as least favorite involved large motor activities (i.e., bicycles, trucks, etc.) and puzzles were described as a cause of frustration for their children. The parent(s) listed factors of safety, construction, imaginative and creative ability, educational and developmental qualities and the child's interests as important considerations in purchasing a toy.

Study Results

The selection of toys, depicted by frequency and length of time, for each group of preschool children are described in Table 4. Children with Down's Syndrome spent more time in play than did the other two groups. Kruskal-Wallis Analysis of variance for unmatched data indicated that the difference was significant ($p < .009$). Both the direction of difference and significance were not anticipated. The ability of the parents to predict their child's toy preferences was fairly accurate. All parents of the children matched by mental age were able to predict their child's choice of toys, while three out of five parents of the children with Down's Syndrome and half of the parents of the children matched by chronological age were able to predict their child's selection of toys before the observational periods. Some parents were surprised with their child's selections, while others were able to distinguish their child's choices immediately.

In assessing the preschool children's play behavior and characteristics during the two, 15-minute play sessions, the three groups of children showed similar play behavior. All of the children were independent in their play but all sought approval at some time from parents in their play. Specific characteristics of the children's play behavior and of the toys used which were noted in the observational periods are shown in Table 5. Rating of a specific behavior was done with the demonstration of at least one instance of such play behavior. Each of the categories of behavior was exhibited in each group except that of abusive play. Boys in the group of children with

Table 4

Toy Selection: Frequency and Length of Time Played with Toys

Toys[c]	Groups of Children: With Down's Syndrome (n=5) F[a]	With Down's Syndrome (n=5) T[b]	MA Control (n=4) F	MA Control (n=4) T	CA Control (n=4) F	CA Control (n=4) T
1. Woodsey's Log House	7	9	7	9.5	2	3
2. Wood Top Workbench	9	29	8	23	5	29.5
3. Baby Ann and Her Care Set	3	7	3	2	4	4.5
4. Play Family Jetport	2	3	4	9.5	2	4.5
5. Crazy Clay Characters	7	21	5	13.5	2	16
6. Dump Truck[d]	2	1.75	5	3.75	1.5	1.5
7. Books[d]	4.5	8.5	.5	.25	.5	1.5
8. Play Desk	5	20	6	9.5	2	19.5
9. Wheelie Dragster	4	10.5	11	7	5	6.5
10. Kitchen Set	3	12.5	10	16.5	5	7
11. Play Family Circus Train	3	8	13	20.5	3	21
12. Miss Piggy Dress-up Muppet Doll	6	9.5	2	1	2	4
Total $\bar{X}$	4.625	11.65	6.21	9.67	2.83	9.96
Total SD	2.23	7.92	3.76	7.52	1.54	10.51

[a] Frequency

[b] Time in minutes

[c] Provided by Fisher-Price Toys and toy names

[d] Average time per session. Children had access to both toys in both sessions.

Table 5

Play Behavior and Toy Characteristics

	Groups of Children						
	With Down's Syndrome (n=5)		MA Control (n=4)		CA Control (n=4)		Total (n=~~16~~ 13)
	M	F	M	F	M	F	
Play Behavior							
Role Play	2	2	1	2	1	2	10
Label Toys and Parts	1	3	2	1	2	2	11
Problem-solving	0	2	1	1	0	2	6
Imagination/Creativity	2	1	1	1	2	1	8
Verbalizations	2	3	1	2	2	1	11
Inappropriate Play	1	0	0	0	0	0	1
Abusive Play	0	0	0	0	0	0	0
Toy Characteristics							
Novelty	1	2	1	2	2	0	8
Few Toys	0	0	0	0	1	1	2
Combinations	2	2	2	1	0	0	7
Gender Suggestibility	2	1	1	0	0	0	4

Down's Syndrome and boys in the group of preschool children matched by chronological age differed from the other groups in that they did not exhibit problem-solving behavior in their play. Under the category of inappropriate play, only one male child with Down's Syndrome threw one toy. Under toy characteristics, children in the Down's Syndrome group showed a repertoire of play behaviors which were intermediate between the mental age and chronological age groups. Children in the Down's Syndrome group tended to explore, pound, and push-pull the toys as did the mental age group, but these children also tended to concentrate on selected toys similar to the chronological age group. Both the younger preschool children and the preschool children with Down's Syndrome tended to combine the toys they were playing with adding to their display of imagination. Gender suggestibility in play and choice of toys was present primarily in the behavior of the boys, both with and without Down's Syndrome. The parent's ability to predict length of time with the toys was not accurate.

To further demonstrate play behavior as indicated by characteristics of toys selected by children, toys ranked for the total sample based upon length of time and frequency of play is illustrated in Table 6. Due to predetermined age weighting by the Fisher-Price Toy Company by which the toys were selected, ability to assess toy preference on the basis of age-specificity was unable to be ascertained. Among the toys used, the Woodtop Workbench was chosen most frequently and for the greatest amount of time by all groups tested. The Crazy Clay Characters, Play Desk, and Kitchen Set were also frequently preferred by all children. In distinguishing a toy's

Table 6

Toy Ranking by Time in Play

Toys[c]	Groups of Children							
	With Down's Syndrome (n=5)		MA Control (n=4)		CA Control (n=4)		Total (n=13)	
	T[a]	R[b]	T	R	T	R	T	R
Woodsey's Log House	9	7	9.5	5/6/7	3	10	22.5	7
Woodtop Workbench	29	1	23	1	29.5	1	81.5	1
Baby Ann and Her Care Set	7	10	2	10	4.5	7/8	13.5	10
Play Family Jetport	3	11	9.5	5/6/7	4.5	7/8	17	8
Crazy Clay Characters	21	2	13.5	4	16	4	50.5	2
Dump Truck	1.75	12	3.75	9	1.5	11/12	7	12
Books	8.5	8	0.25	12	1.5	11/12	10.25	11
Play Desk	20	3	9.5	5/6/7	19.5	3	49	3/4
Wheelie Dragster	10.5	5	7	8	6.5	6	24	6
Kitchen Set	12.5	4	16.5	3	7	5	36	3/4
Play Family Circus Train	8	9	20.5	2	21	2	49.5	5
Miss Piggy Dress-up Doll	9.5	6	1	11	4	9	14.5	9

[a] Time in minutes

[b] Rating

[c] Fisher-Price Toys and toy names

popularity according to gender preferences, both the group of children with Down's Syndrome and the group of children matched by mental age showed a gender preference in their top six choices of toys (4:2), whereas the group of children matched by chronological age equally chose gender-specific and neutral toys. On the basis of preference for fine motor/gross motor designated toys, all groups of children preferred fine motor toys based upon the top six selections by each group.

Most children owned or had opportunities to play with at least one of the Fisher-Price toys used in the study. Though some of the children had not had exposure to the Fisher-Price toys, they had played with similar toys.

CHAPTER V

DISCUSSION

The purpose of this study was to examine what differences exist in toy selection and play behavior between preschool boys and girls (ages 4-6 years) with Down's Syndrome and preschool boys and girls (ages 4-6 years) with no mental retardation. A third group of preschool boys and girls (ages 2½-3 years) was used as a measure of mental age similar to the group of children with Down's Syndrome. Characteristics of the child, characteristics of the toys, and situational characteristics which may influence the play behavior of the child were assessed. All children were observed separately in unstructured play during two, 15-minute observational periods in a familiar environment with two preselected groups of toys. The Peabody Picture Vocabulary Test--Revised (Form L), an observational guide, and two questionnaires completed by the parents concerning demographic data and predictability of toy preference and time in play were used to collect data.

Toy Selection

Toy selection as depicted by frequency and length of time for each group of preschool children indicated both similarities and differences. Use of the Kruskal-Wallis Analysis of variance for unmatched data illustrated that the children with Down's Syndrome spent significantly more time in play than did the other two groups ($p < .009$). This finding was not anticipated and might be explained

by the exposure of these children to infant stimulation programs, but a larger sample size would offer more predictability.

Another difference in toy preference might be explained by the amount of exposure the child has had to the toy in the past. This would indicate that children with Down's Syndrome and the children matched by chronological age would show less novelty in their choice of toys based upon age. Based upon the results of Table 5, this was somewhat true with the group of children matched by chronological age, but not with the children with Down's Syndrome. This could be explained by these children having specific toys and/or toy groups suggested for them through developmental daycare centers and infant stimulation programs, but a larger subject population would again be needed to better identify that novelty/exposure is related to age. Research in the past has indicated that children with mental retardation preferred simple (Ellis, 1973) and familiar toys (Currie, 1966). The only familiar toy which was played with infrequently by the children without mental retardation and more frequently by the children with Down's Syndrome was the books.

Play Behavior

Overall, differences were small in the play behavior of preschool children with Down's Syndrome as compared to preschool children without mental retardation, either with similar chronological or similar mental ages. The children with Down's Syndrome tested displayed many behaviors similar to their age peers without mental retardation, findings which were incongruent with the literature. Previous

findings which were not supported were: (a) attention spans are longer in children without mental retardation (Horne & Philleo, 1942); (b) children with mental retardation show more fleeting contact and less manipulation of toys (Tilton & Ottinger, 1964); (c) children with mental retardation are less active (Wang, 1958); (d) children with mental retardation have shown rough, destructive and inappropriate use of objects (Benoit, 1955; Mogford, 1977); and (e) children with mental retardation are less creative and imaginative (Horne & Philleo, 1942). Past studies of children with mental retardation, prior to the late 1960's, have largely been based in institutional settings and may have influenced the comparison of recent studies involving children with mental retardation raised at home having attended an infant stimulation program (Blackwell, 1979; Schuster & Ashburn, 1980). The previous finding that children with Down's Syndrome display greater pounding and push-pull activity (Weiner, Ottinger, & Tilton, 1969) was confirmed in this study.

Positive play behaviors indicated as role-playing, labelling of toys and parts, problem-solving, imagination/creativity, and verbalizations were noted in each group of children. Of the negative play behaviors (inappropriate and abusive play), only one instance of inappropriate play, throwing a toy, was observed in one male child with Down's Syndrome. Specifically, creativity and imagination in children are difficult to assess. On the basis of observation, the children with Down's Syndrome displayed the greatest use of imagination (e.g., a puppet show and a "cops and robbers" routine). One can argue that the level of language use is an indication of creative

ability which would place the chidren with Down's Syndrome below their chronological age peers. Piaget (1977) has written that thought (including creative) is more developed in the preschool child than spoken language. He wrote:

> But since the development of imitation itself is bound up with that of intelligent behavior on the whole, we thus see that if it is legitimate to regard language as playing a chief role in the formation of thought, this is so to the extent that it constitutes one of the manifestations of the symbolical function, the development of the function being in turn dominated by intelligence in its total functioning. (p. 118)

In contrast, the Russian verbal mediation theorist, Vygotsky (1962), has described the development of speech as preceding the development of thought. He explained:

> . . . inner speech develops through a slow accumulation of functional and structural changes, that it branches from the child's external speech simultaneously with the differentiation of the social and the egocentric functions of speech and finally that the speech structures mastered by the child become the basic structure of his thinking. (pp. 50-51).

Based upon these views, one can discuss the differences between thinking and thought. Piaget appears to be describing thought in the child, whereas Vygotsky refers to the development of analytical thinking which Piaget would agree with starts at a later level of cognitive development. But, on the basis of being able to possess thought and be guided by this cognitive action in relation to Piaget's discussion of egocentric-receptive speech in the preoperational stage, one must ask, is it feasible for a child with a cognitive disability to have creative thought during the preschool years? Analysis is usually based on external language rather than symbolic function, but "role-

playing" and "cops and robbers' play" may indicate support for analysis based on symbolic function.

Another measure of creativity and imagination could be determiend by the maturity/immaturity level of the child as reflected in the maturity/immaturity of the toys chosen by the child. Based upon the age-weights of the toys (see Table 1) given by Fisher-Price Toy Company, a rating of maturity/immaturity for each toy chosen for this study could not be differentiated.

Toy characteristics of novelty, few numbers of toys played with, and combinations of toys used were also assessed. Novelty of the toys used was briefly described under toy selection. A majority of the parents (8 out of 13) indicated that the toys used in the study were novel to their children with the highest incidence of novelty found in the mental age group. Use of only a few toys in the observational period was only observed in two instances in the chronological age group. This might be explained by the age/maturity of the child comprehending the observational sessions to be a task as opposed to an opportunity to play and/or explore all the toys present. A combination of the toys was seen in the Down's Syndrome and mental age groups possibly indicating a need to play with "all" the toys in the time allowed or as a means to express their play more creatively. Gender suggestibility was also seen only in the Down's Syndrome and mental age groups and was favored by the males in each of these groups. Environmental exposure to toy objects and role models at home might account for this.

The ranking of toys, as illustrated in each group (Table 5), provided additional information on gender suggestibility and fine motor/gross motor preferences in objects. All of the children observed, except the children matched by chronological age, slightly preferred gender-suggested toys (4:2) based upon a list of the top six preferred toys. Specifically (see Table 5), the boys in the group of children with Down's Syndrome and the group of children matched by mental age chose gender-specific toys. This data is supported by a study by DeLucia (1963) which found that children were less gender-specific in their choice of toys as they aged and boys tended to prefer gender-suggested toys overall. Finally, all of the children preferred fine motor toys based upon the top six preferred toys.

Implications for Nursing

Understanding a child's preference for toys and play behavior has relevant meaning for both nursing and the practice of nursing. Possessing knowledge about preschool children, both with and without mental retardation (specifically, Down's Syndrome), in their similarities and differences in growth and development can also enhance a nurse's practice. Based upon results of this study, realization that a child with Down's Syndrome behaves much like a child of similar age in the act of play can assist the nurse in not treating the child with Down's Syndrome differently than a child without mental retardation of a similar age. Further, choosing a toy for a child with Down's Syndrome should not be altered due to that child's disability, but should be chosen, as with any child, for that child's developmental

needs. For instance, one should not be discouraged from choosing a fine motor designed toy for a child with Down's Syndrome, but should encourage further development of such skills needed for appropriate use of that toy.

Implications for Further Study

Based upon information and results elicited from this descriptive pilot study, further research is warranted to investigate developmental implications in the play behavior and toy preferences of preschool children with Down's Syndrome. Limitations to this study included the number of subjects used, need for reliability and validity testing, and the degree of attention span at the preschool level producing some noncompliance in taking the Peabody Picture Vocabulary Test which may have resulted in some lower mental age and IQ equivalent ratings. Repeated studies might choose to look at comparing this method in combination with the Caldwell HOME tool for the environment and using a different group or groupings of toys. Observing the child's play for possible themes explaining the direction or focus of the play might also be done.

CHAPTER VI

SUMMARY

A study was done to explore the toy selection and play behavior of preschool children with Down's Syndrome in comparison to preschool children with no mental retardation. The purpose of the study was to examine the differences in toy selection and play behavior between preschool (ages 4-6 years) boys and girls with Down's Syndrome and preschool boys and girls with no mental retardation matched by both mental age and chronological age. The study further explored: (a) the play characteristics of the normal preschool child and the child with Down's Syndrome, (b) characteristics of toys influenced by a child's play habits, and (c) situational characteristics which might be affected by the child's behavior in play. Although the results could not be used to make general predictions regarding toy selection and/or play behavior in preschool children with Down's Syndrome, the study was useful in illustrating similar toy selection and play behavior in preschool children with Down's Syndrome as compared to preschool children with no mental retardation, both with similar chronological and mental ages.

Three groups of preschool children were compared in this study. One group was comprised of two boys and three girls with Down's Syndrome (ages 4-6 years) and was compared to two groups of two boys and two girls with no mental retardation. Due to the availability of only one preschool girl with Down's Syndrome between 4-6 years of age, one girl with Down's Syndrome aged 3½ years and another girl with

Down's Syndrome aged 7½ years, were used to give some predictability to children with Down's Syndrome on either side of the age range of 4-6 years. A younger group of preschool children with no mental retardation (ages 2½-3 years) was compared with preschool children with Down's Syndrome of similar mental ages. The final group of preschool children with no mental retardation (4-6 years of age) was compared with the preschool children with Down's Syndrome based upon similar chronological ages.

Characteristics of the child, the toys, and of the environment (situational) which may affect the play behavior of a child were assessed. A parent questionnaire provided background information on each child's play behavior. Two 15-minute observational periods were completed in order to observe the children in unstructured play with an overall total of 12 preselected toys. Parents were also asked to rate their child's toy preferences and the length of time they predicted their child would spend in play with the toys during the observational periods.

Results indicated that children with Down's Syndrome played for a significantly ($p < .009$) greater length of time with the toys during the two play periods than did the two others groups of children in a comparison of the groups of children using the Kruskal-Wallis Analysis of variance for unmatched data. The children did not differ on other play behavior or toy selection. Results differed from former research information regarding play behavior of children with mental retardation which reported that children with mental retardation play less.

Limitations to this study included the number of subjects used and the degree of attention span at the preschool level producing some noncompliance in taking the Peabody Picture Vocabulary Test which could have resulted in some lower mental age and IQ equivalent values. Use of a different set of toys, observation for possible play themes, and use of the Caldwell HOME tool for the environment in combination with the present method would add to these results and provide further study.

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APPENDICES

APPENDIX A

Letters of Explanation and Consent Forms

Code #: _____

Date: _____

Dear Parent(s):

You are invited to have your child participate in a study which I am conducting as part of my Master's degree program in Pediatric Nursing at the University of Wisconsin-Madison. The purpose of the study is to examine whether a difference in toy selection exists between preschool (ages 4-6 years) boys and girls with Down's Syndrome and preschool boys and girls with no mental retardation. The study will also explore the preschooler's play characteristics, both of the normal child and the child with Down's Syndrome, characteristics of the toys and situational characteristics which might be influenced by the child's play behavior.

How was your child selected? The children with Down's Syndrome were selected from children who have used facilities which service children with mental retardation in a preschool or daycare setting. Initial contact regarding this study will come from a representative from the facility which you and your family are presently using or have used in the past.

How can your child participate in the study? By doing three things: First, complete the attached questionnaire which asks questions about your child's play behavior, amount of time he/she spends in play and toy preferences, and return it to me in the self-addressed, stamped envelope which I have provided. The entire questionnaire will take about 10 minutes to complete. Second, after you have returned the questionnaire to me, I will call you to set up the times for the observational periods to assess your child's toy preferences. I would like to observe your child twice, each time with a different set of toys which I will provide. During the observational periods, I will be asking your child to play, unstructured and uninterrupted, for 15 minutes in a room with seven preselected toys. I will sit in the corner of the room and allow your child to play, but will offer no guidance or assistance in his/her play. I will record which toys your child selects, how long he/she plays with each one and the type of play behavior your child exhibits during the 15-minute periods. Third, participation will include your child's partaking in a picture vocabulary assessment tool. This score will be used to match children with similar scores. The child's chronological age will also be used to match the children. Parents are invited to be present and observe during the study. Participation in the study is strictly voluntary.

Where will the study take place? The observational part of the study will take place at your home and will be scheduled for a ½-hour period of time, each time, at your convenience.

Who will know what you've answered on the questionnaire? No one, except myself and people working with me on the study. I will assign a code number to your name and phone number. Your questionnaire will be identified by this code number only; no names will be placed on the questionnaire. The data collected during the observational period on your child's toy preferences will also be recorded on a coded sheet. Your name and phone number will not appear anywhere except on my list of names and assigned code numbers. Completed questionnaires will be kept confidential. Only group results will be reported.

Why do I need your phone number? To call you if I have not received a blank or completed questionnaire from you within two weeks and to set up your appointments for the observational portion of the study.

Will it cost you anything? No, the questionnaire will take about 10 minutes to complete and the observational part of the study should take about ½-hour of you and your's child's time.

What are the benefits to your child? Probably no direct benefits, but information may be obtained which could help nurses, like myself and other health professionals, enhance a child's development, both with and without Down's Syndrome, through an understanding of their play behavior and preferences in toy selection.

Are there any risks to your child? None.

What will you receive? I will not be able to give you anything in return for your time and information. If requested, I can give you a summary of my findings.

What if you decide not to allow your child to participate? No problem, just return the blank questionnaire to me in the enclosed, self-addressed, stamped envelope. Only I will know your decision.

This letter is for you to keep. THANK YOU for your assistance. If you have any further questions regarding this study, please call me collect.

Wendy Marie Nehring
University of Wisconsin-Madison
Graduate School of Nursing

Telephone: (608)274-2969
4859 Sheboygan Avenue, #317
Madison, WI 53705

Please return the attached form if you give permission for your child to participate.

CONSENT FORM AUTHORIZATION: I, _____, have read the above and have decided to allow my child to participate in the research study described above. My signature also indicates that I have received a copy of the consent form.

Signature _____ Date _____

Investigator: Wendy M. Nehring Telephone: (608)274-2969

Code #: _____

Date: _____

Dear Parent(s):

You are invited to have your child participate in a study which I am conducting as part of my Master's degree program in Pediatric Nursing at the University of Wisconsin-Madison. The purpose of the study is to examine whether a difference in toy selection exists between preschool (ages 4-6 years) boys and girls with Down's Syndrome and preschool boys and girls with no mental retardation. The study will also explore the preschooler's play characteristics, both of the normal child and the child with Down's Syndrome, characteristics of the toys and situational characteristics which might be influenced by the child's play behavior.

How was your child selected? Children without mental retardation were chosen from preschools and daycare centers which service children of preschool age. Initial contact regarding this study will come from a representative from the facility which you and your family are presently using or have used in the past.

How can your child participate in the study? By doing three things: First, complete the attached questionnaire which asks questions about your child's play behavior, amount of time he/she spends in play and toy preferences, and return it to me in the self-addressed, stamped envelope which I have provided. The entire questionnaire will take about 10 minutes to complete. Second, after you have returned the questionnaire to me, I will call you to set up the times for the observational periods to assess your child's toy preferences. I would like to observe your child twice, each time with a different set of toys which I will provide. During the observational periods, I will be asking your child to play, unstructured and uninterrupted, for 15 minutes in a room with seven preselected toys. I will sit in the corner of the room and allow your child to play, but will offer no guidance or assistance in his/her play. I will record which toys your child selects, how long he/she plays with each one and the type of play behavior your child exhibits during the 15-minute periods. Third, participation will include your child's partaking in a picture vocabulary assessment tool. This score will be used to match children with similar scores. The child's chronological age will also be used to match the children. Parents are invited to be present and observe during the study. Participation in the study is strictly voluntary.

Where will the study take place? The observational part of the study will take place at your home and will be scheduled for a ½-hour period of time, each time, at your convenience.

Who will know what you've answered on the questionnaire? No one, except myself and people working with me on the study. I will assign a code number to your name and phone number. Your questionnaire will be identified by this number only; no names will be placed on the questionnaire. The data collected during the observational period on your child's toy preferences will also be recorded on a coded sheet. Your name and phone number will not appear anywhere except on my list of names and assigned code numbers. Completed questionnaires will be kept confidential. Only group results will be reported.

Why do I need your phone number? To call you if I have not received a blank or completed questionnaire from you within two weeks and to set up your appointments for the observational portion of the study.

Will it cost you anything? No, the questionnaire will take about 10 minutes to complete and the observational part of the study should take about ½-hour of your and your child's time.

What are the benefits to your child? Probably no direct benefits, but information may be obtained which could help nurses, like myself and other health professionals, enhance a child's development, both with and without Down's Syndrome, through an understanding of their play behavior and preferences in toy selection.

Are there any risks to your child? None.

What will I receive? I will not be able to give you anything in return for your time and information. If requested, I can give you a summary of my findings.

What if you decide not to allow your child to participate? No problem. Return the blank questionnaire to me in the enclosed, self-addressed, stamped envelope. Only I will know your decision.

This letter is for you to keep. THANK YOU for your assistance. If you have any further questions regarding this study, please call me collect.

Wendy Marie Nehring
University of Wisconsin-Madison
Graduate School of Nursing

Telephone: (608)274-2969
4859 Sheboygan Avenue, #317
Madison, WI 53705

Please return the attached from if you give permission for your child to participate.

CONSENT FORM AUTHORIZATION: I, _____, have read the above and have decided to allow my child to participate in the research study described above. My signature also indicates that I have received a copy of the consent form.

Signature _____ Date _____

Investigator: Wendy M. Nehring Telephone: (608)274-2969

Code #: _____

Date: _____

APPENDIX B

Personal Information Sheet

Either parent may fill out this questionnaire.

Your telephone number: _____

Part I. General Information

Please answer the following questions:

Child's age (in months) _____

Sex: Female ___ Male ___

My child is: left-handed ___ right-handed ___

Does your child have a developmental disability? (please check those that apply)

___ Down's Syndrome
___ hearing loss
___ dyslexia (reading disability)
___ loss of sight
___ speech problem
___ cerebral palsy
___ spina bifida
___ muscular dystrophy

If you checked Down's Syndrome, do you know what level of mental retardation your child has? (please check)

___ mild ___ moderate ___ profound or severe

Father's occupation _____

Mother's occupation _____

Please state the number of children in your family _____

Please state the age and sex (boy or girl) of each of your children from the oldest to the youngest and circle the age of the child who will take part in the study (e.g., boy--9 years, girl--6 years).

_____

Part II. Play Behavior

1. Please estimate how much time your child spends in play each day.

2. Please estimate how much time your child spends in solitary play each day.

3. Please estimate how much time your child spends in play with his/her brothers and/or sisters each day.

4. Please estimate how much time your child spends in play with direct interaction with his/her mother each day.

5. Please estimate how much time your child spends in play with direct interaction with his/her father each day.

6. Please estimate how much time your child spends in play with direct interaction with his/her grandparents each month. Also, include how many times your child sees his/her grandparents each month. Are all of the child's grandparent's living?

7. Does your child play with children other than his/her family?

   ___ Yes ___ No

   If yes, what are their ages? (include sex) _____

8. Did your child attend an infant stimulation program? If yes, how long? (list ages)

9. Does your child attend a preschool program? If yes, how long? (please list name of program and age(s) your child attended)

10. Has your child attended any other preschool programs? If yes, how long? (please list name of program and age(s) your child attended)

11. Has your child attended church school (Sunday school) class? How long? (list ages)

12. Has your child had a babysitter? If yes, how long? Number of children present? (list ages)

Part III. Toys (if you need more space in which to answer, please use the back of the page)

1. a) What are your child's favorite toys to play with? (please list and describe briefly, size, etc.)

   b) Do you know why your child likes to play with this/these toys?

2. a) What are your child's least favorite toys to play with? (please list and describe)

   b) Do you know why your child doesn't care to play with this/these toys?

3. When buying toys for your child, what qualities or haracteristics of the toy do you look for? Please explain.

4. Was there anything specific about your child's play that was not mentioned in this questionnaire? If so, please comment.

THANK YOU for taking the time to fill out this questionnaire. Please return this questionnaire in the enclosed, stamped envelope if you agree to allow your child to participate in this study. Please, also include the consent form authorization.

Code #: _____

Date: _____

APPENDIX C

Parental Rating Scale

Group One	Group Two	Used in Both Groups
The Woodsey's Log House	Play Desk	Dump Truck
Wood Top Workbench	Wheelie Dragster	Books
Baby Ann and her Care Set	Kitchen Set	
Play Family Jetport	Play Family Circus Train	
Crazy Clay Characters	Miss Piggy Dress-up Muppet Doll	

*All toys are from Fisher-Price.

1. Does your child own or have frequent opportunities to play with any of the above toys? (please list)

   First session:

   Second session:

2. From the above list of toys, which toys do you think your child will play with? (list the toys for each session)

   First session:

   Second session:

3. For each toy listed in #2, please estimate how long your child will play with the toy. (total 15 minutes)

   First session:

   Second session:

4. Please rate each toy on a scale from 1-5 on qualities of femininity, masculinity and neutrality. (circle the appropriate number, 5 is high)

	Masculinity	Femininity	Neutrality
The Woodsey's Log House	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Wood Top Workbench	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

	Masculinity	Femininity	Neutrality
Baby Ann and her Care Set	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Crazy Clay Characters	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Dump Truck	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Books	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Play Desk	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Wheelie Dragster	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Kitchen Set	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Play Family Circus Train	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Miss Piggy Dress-up Muppet Doll	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Code # _____

Date: __ ___

APPENDIX D

Toy Preference Rating Scale

Male ____ Female ____

Presence of Down's Syndrome: Yes ____ No _____

Mental age ____ IQ ____ Chronological age ____

List of Toys	Number of times played with (toy preference)	Total amount of time played with (length of time)
Group 1		
1. The Woodsey's Log House		
2. Wood Top Workbench		
3. Baby Ann and her Care Set		
4. Play Family Jetport		
5. Crazy Clay Characters		
6. Dump Truck included		
7. Books in both		
Group 2		
8. Play Desk		
9. Wheelie Dragster		
10. Kitchen Set		
11. Play Family Circus Train		
12. Miss Piggy Dress-up Muppet Doll		

Describe overall play behavior of child in relation to his/her manipulation of the toy:

	Comments - sessions	
	1	2
handling toy appropriately		
displays imagination/creativity		
dependence/independence with parent		
use of language		
hitting		
pounding		
throwing		
dropping		

	Comments - sessions 1	2
displays anger		
displays fear		
ignoring toys		
other responses		